



# SEQUENCE LISTING

<110> ASHTON-RICKARDT, PHILIP

<120> METHODS AND COMPOSITIONS FOR THE INHIBITION OF  
CATHEPSINS

<130> ARCD:390US

<140> 10/782,401

<141> 2004-02-19

<150> 60/448,285

<151> 2003-02-19

<160> 25

<170> PatentIn Ver. 2.1

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Pro Phe Ser Ile Cys Thr Ala Leu Ala Leu Leu Ser Leu Gly Ala Lys	65	70	75
Ser Asn Thr Leu Lys Glu Ile Leu Glu Gly Leu Lys Phe Asn Leu Thr	85	90	95
Glu Thr Pro Glu Pro Asp Ile His Gln Gly Phe Arg Tyr Leu Leu Asp	100	105	110
Leu Leu Ser Gln Pro Gly Asn Gln Val Gln Ile Ser Thr Gly Ser Ala	115	120	125
Leu Phe Ile Glu Lys His Leu Gln Ile Leu Ala Glu Phe Lys Glu Lys	130	135	140
Ala Arg Ala Leu Tyr Gln Ala Glu Ala Phe Thr Ala Asp Phe Gln Gln	145	150	155
Pro Leu Lys Ala Thr Lys Leu Ile Asn Asp Tyr Val Ser Asn His Thr	165	170	175
Gln Gly Lys Ile Lys Glu Leu Ile Ser Gly Leu Lys Glu Ser Thr Leu	180	185	190
Met Val Leu Val Asn Tyr Ile Tyr Phe Lys Gly Lys Trp Lys Asn Pro	195	200	205
Phe Asp Pro Asn Asp Thr Phe Lys Ser Glu Phe Tyr Leu Asp Glu Lys	210	215	220
Arg Ser Val Ile Val Ser Met Met Lys Thr Gly Tyr Leu Thr Thr Pro	225	230	235
Tyr Phe Arg Asp Glu Glu Leu Ser Cys Thr Val Val Glu Leu Lys Tyr	245	250	255
Thr Gly Asn Ala Ser Ala Met Phe Ile Leu Pro Asp Gln Gly Arg Met	260	265	270
Gln Gln Val Glu Ala Ser Leu Gln Pro Glu Thr Leu Arg Lys Trp Lys	275	280	285
Asn Ser Leu Lys Pro Arg Met Ile His Glu Leu Arg Leu Pro Lys Phe	290	295	300
Ser Ile Ser Thr Asp Tyr Ser Leu Glu His Ile Leu Pro Glu Leu Gly			

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Ile Arg Glu Val Phe Ser Thr His Ala Asp Leu Ser Ala Ile Thr Gly						
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Thr Lys Asp Leu Arg Val Ser Gln Val Val His Lys Ala Val Leu Asp						
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Val Ala Glu Lys Gly Thr Glu Ala Ala Ala Thr Gly Met Ala Gly						
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Val Gly Cys Cys Ala Val Phe Asp Phe Leu Glu Ile Phe Phe Asn Arg						
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Pro Phe Leu Met Ile Ile Ser Asp Thr Lys Ala His Ile Ala Leu Phe						
	385		390		395	400
Met Ala Lys Val Thr Asn Pro Glu Arg Ser Thr Asn Phe Pro Asn Gly						
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50 55 60
Glu Val His Ser Arg Phe Gln Ser Leu Asn Ala Asp Ile Asn Lys Arg
65 70 75 80
Gly Ala Ser Tyr Ile Leu Lys Leu Ala Asn Arg Leu Tyr Gly Glu Lys
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Thr Tyr Asn Phe Leu Pro Glu Phe Leu Val Ser Thr Gln Lys Thr Tyr
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Gly Ala Asp Leu Ala Ser Val Asp Phe Gln His Ala Ser Glu Asp Ala
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 Pro Glu Leu Leu Ala Ser Gly Met Val Asp Asn Met Thr Lys Leu Val  
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 180 185 190  
 Lys Thr Val Lys Met Met Tyr Gln Lys Lys Lys Phe Ala Tyr Gly Tyr  
 195 200 205  
 Ile Glu Asp Leu Lys Cys Arg Val Leu Glu Leu Pro Tyr Gln Gly Glu  
 210 215 220  
 Glu Leu Ser Met Val Ile Leu Leu Pro Asp Asp Ile Glu Asp Glu Ser  
 225 230 235 240  
 Thr Gly Leu Lys Lys Ile Glu Glu Gln Leu Thr Leu Glu Lys Leu His  
 245 250 255  
 Glu Trp Thr Lys Pro Glu Asn Leu Asp Phe Ile Glu Val Asn Val Ser  
 260 265 270  
 Leu Pro Arg Phe Lys Leu Glu Glu Ser Tyr Thr Leu Asn Ser Asp Leu  
 275 280 285  
 Ala Arg Leu Gly Val Gln Asp Leu Phe Asn Ser Ser Lys Ala Asp Leu  
 290 295 300  
 Ser Gly Met Ser Gly Ala Arg Asp Ile Phe Ile Ser Lys Ile Val His  
 305 310 315 320  
 Lys Ser Phe Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala  
 325 330 335  
 Thr Ala Gly Ile Ala Thr Phe Cys Met Leu Met Pro Glu Glu Asn Phe  
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<211> 415

<212> PRT

<213> Homo sapiens

<400> 4

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Trp	Ser	Ile	Ser	Ser	Thr	Met	Ala	Met	Val	Tyr	Met	Gly	Ser	Arg	Gly	35	40	45
Ser	Thr	Glu	Asp	Gln	Met	Ala	Lys	Val	Leu	Gln	Phe	Asn	Glu	Val	Gly	50	55	60
Ala	Asn	Ala	Val	Thr	Pro	Met	Thr	Pro	Glu	Asn	Phe	Thr	Ser	Cys	Gly	65	70	75
Phe	Met	Gln	Gln	Ile	Gln	Lys	Gly	Ser	Tyr	Pro	Asp	Ala	Ile	Leu	Gln	85	90	95
Ala	Gln	Ala	Ala	Asp	Lys	Ile	His	Ser	Ser	Phe	Arg	Ser	Leu	Ser	Ser	100	105	110
Ala	Ile	Asn	Ala	Ser	Thr	Gly	Asn	Tyr	Leu	Leu	Glu	Ser	Val	Asn	Lys	115	120	125
Leu	Phe	Gly	Glu	Lys	Ser	Ala	Ser	Phe	Arg	Glu	Glu	Tyr	Ile	Arg	Leu	130	135	140
Cys	Gln	Lys	Tyr	Tyr	Ser	Ser	Glu	Pro	Gln	Ala	Val	Asp	Phe	Leu	Glu	145	150	155
Cys	Ala	Glu	Glu	Ala	Arg	Lys	Lys	Ile	Asn	Ser	Trp	Val	Lys	Thr	Gln	165	170	175
Thr	Lys	Gly	Lys	Ile	Pro	Asn	Leu	Leu	Pro	Glu	Gly	Ser	Val	Asp	Gly	180	185	190
Asp	Thr	Arg	Met	Val	Leu	Val	Asn	Ala	Val	Tyr	Phe	Lys	Gly	Lys	Trp	195	200	205
Lys	Thr	Pro	Phe	Glu	Lys	Lys	Leu	Asn	Gly	Leu	Tyr	Pro	Phe	Arg	Val	210	215	220
Asn	Ser	Ala	Gln	Arg	Thr	Pro	Val	Gln	Met	Met	Tyr	Leu	Arg	Glu	Lys	225	230	235
Leu	Asn	Ile	Gly	Tyr	Ile	Glu	Asp	Leu	Lys	Ala	Gln	Ile	Leu	Glu	Leu	245	250	255
Pro	Tyr	Ala	Gly	Asp	Val	Ser	Met	Phe	Leu	Leu	Leu	Pro	Asp	Glu	Ile	260	265	270
Ala	Asp	Val	Ser	Thr	Gly	Leu	Glu	Leu	Leu	Glu	Ser	Glu	Ile	Thr	Tyr	275	280	285
Asp	Lys	Leu	Asn	Lys	Trp	Thr	Ser	Lys	Asp	Lys	Met	Ala	Glu	Asp	Glu	290	295	300
Val	Glu	Val	Tyr	Ile	Pro	Gln	Phe	Lys	Leu	Glu	Glu	His	Tyr	Glu	Leu	305	310	315

Arg Ser Ile Leu Arg Ser Met Gly Met Glu Asp Ala Phe Asn Lys Gly  
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Arg Ala Asn Phe Ser Gly Met Ser Glu Arg Asn Asp Leu Phe Leu Ser  
340 345 350

Glu Val Phe His Gln Ala Met Val Asp Val Asn Glu Glu Gly Thr Glu  
355 360 365

Ala Ala Ala Gly Thr Gly Gly Val Met Thr Gly Arg Thr Gly His Gly  
370 375 380

Gly Pro Gln Phe Val Ala Asp His Pro Phe Leu Phe Leu Ile Met His  
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Ser Ile Thr Ser Ala Leu Gly Met Val Leu Leu Gly Ala Lys Asp Asn  
35 40 45

Thr Ala Gln Gln Ile Lys Lys Val Leu His Phe Asp Gln Val Thr Glu  
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Asn Thr Thr Gly Lys Ala Ala Thr Tyr His Val Asp Arg Ser Gly Asn  
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Val His His Gln Phe Gln Lys Leu Leu Thr Glu Phe Asn Lys Ser Thr  
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Asp Ala Tyr Glu Leu Lys Ile Ala Asn Lys Leu Phe Gly Glu Lys Thr  
100 105 110

Tyr Leu Phe Leu Gln Glu Tyr Leu Asp Ala Ile Lys Lys Phe Tyr Gln  
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Thr Ser Val Glu Ser Val Asp Phe Ala Asn Ala Pro Glu Glu Ser Arg  
130 135 140

Lys Lys Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Glu Lys Ile Lys  
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Asn Leu Ile Pro Glu Gly Asn Ile Gly Ser Asn Thr Thr Leu Val Leu

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Glu	Asp	Thr	Lys	Glu	Glu	Lys	Phe	Trp	Pro	Asn	Lys	Asn	Thr	Tyr	Lys
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Glu	Asp	Val	Gln	Ala	Lys	Val	Leu	Glu	Ile	Pro	Tyr	Lys	Gly	Lys	Asp
225					230					235					240
Leu	Ser	Met	Ile	Val	Leu	Leu	Pro	Asn	Glu	Ile	Asp	Gly	Leu	Gln	Lys
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Leu	Glu	Glu	Lys	Leu	Thr	Ala	Glu	Lys	Leu	Met	Glu	Trp	Thr	Ser	Leu
			260					265					270		
Gln	Asn	Met	Arg	Glu	Thr	Arg	Val	Asp	Leu	His	Leu	Pro	Arg	Phe	Lys
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Val	Glu	Glu	Ser	Tyr	Asp	Leu	Lys	Asp	Thr	Leu	Arg	Thr	Met	Gly	Met
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Val	Asp	Ile	Phe	Asn	Gly	Asp	Ala	Asp	Leu	Ser	Gly	Met	Thr	Gly	Ser
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Arg	Gly	Leu	Val	Leu	Ser	Gly	Val	Leu	His	Lys	Ala	Phe	Val	Glu	Val
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<400> 6

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 Val His His Gln Phe Gln Lys Leu Leu Thr Glu Phe Asn Lys Ser Thr  
 85 90 95  
 Asp Ala Tyr Glu Leu Lys Ile Ala Asn Lys Leu Phe Gly Glu Lys Thr  
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 Tyr Gln Phe Leu Gln Glu Tyr Leu Asp Ala Ile Lys Lys Phe Tyr Gln  
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 Asn Leu Phe Pro Asp Gly Thr Ile Gly Asn Asp Thr Thr Leu Val Leu  
 165 170 175  
 Val Asn Ala Ile Tyr Phe Lys Gly Gln Trp Glu Asn Lys Phe Lys Lys  
 180 185 190  
 Glu Asn Thr Lys Glu Glu Lys Phe Trp Pro Asn Lys Asn Thr Tyr Lys  
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 Ser Val Gln Met Met Arg Gln Tyr Asn Ser Phe Asn Phe Ala Leu Leu  
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 260 265 270  
 Gln Asn Met Arg Glu Thr Cys Val Asp Leu His Leu Pro Arg Phe Lys  
 275 280 285  
 Met Glu Glu Ser Tyr Asp Leu Lys Asp Thr Leu Arg Thr Met Gly Met  
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 His Gly Leu Ser Val Ser Lys Val Leu His Lys Ala Phe Val Glu Val  
 325 330 335



Thr Glu Glu Gly Val Glu Ala Ala Ala Thr Ala Val Val Val Val  
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Glu Leu Ser Ser Pro Ser Thr Asn Glu Glu Phe Cys Cys Asn His Pro  
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Gly Arg Phe Ser Ser Pro  
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Ser Met Ser Cys Ala Leu Ala Met Val Tyr Met Gly Ala Lys Gly Asn  
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Thr Ala Ala Gln Met Ala Gln Ile Leu Ser Phe Asn Lys Ser Gly Gly  
 50 55 60

Gly Gly Asp Ile His Gln Gly Phe Gln Ser Leu Leu Thr Glu Val Asn  
 65 70 75 80

Lys Thr Gly Thr Gln Tyr Leu Leu Arg Val Ala Asn Arg Leu Phe Gly  
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Glu Lys Ser Cys Asp Phe Leu Ser Ser Phe Arg Asp Ser Cys Gln Lys  
 100 105 110

Phe Tyr Gln Ala Glu Met Glu Glu Leu Asp Phe Ile Ser Ala Val Glu  
 115 120 125

Lys Ser Arg Lys His Ile Asn Thr Trp Val Ala Glu Lys Thr Glu Gly  
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Lys Ile Ala Glu Leu Leu Ser Pro Gly Ser Val Asp Pro Leu Thr Arg  
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Leu Val Leu Val Asn Ala Val Tyr Phe Arg Gly Asn Trp Asp Gly Gln  
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Phe Asp Lys Glu Asn Thr Glu Glu Arg Leu Phe Lys Val Ser Lys Asn  
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Glu Glu Lys Pro Val Gln Met Met Phe Lys Gln Ser Thr Phe Lys Lys  
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Thr Tyr Ile Gly Glu Ile Phe Thr Gln Ile Leu Val Leu Pro Tyr Val  
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 Gly Lys Glu Leu Asn Met Ile Ile Met Leu Pro Asp Glu Thr Thr Asp  
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 Thr Arg Leu Asp Met Met Asp Glu Glu Glu Val Glu Val Ser Leu Pro  
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 Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Thr Ala Ala  
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 Ile Met Met Met Arg Cys Ala Arg Phe Val Pro Arg Phe Cys Ala Asp  
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 Ser Thr Ala Ala Gln Met Ser Gln Ala Leu Cys Leu Tyr Lys Asp Gly  
 50 55 60  
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 Gly Thr Gln Tyr Leu Leu Arg Thr Ala Asn Arg Leu Phe Gly Glu Lys

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Gln	Ala	Glu	Leu	Glu	Glu	Leu	Ser	Phe	Ala	Glu	Asp	Thr	Glu	Glu	Cys															
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Arg	Lys	His	Ile	Asn	Asp	Trp	Val	Ala	Glu	Lys	Thr	Glu	Gly	Lys	Ile															
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Ser	Glu	Val	Leu	Asp	Ala	Gly	Thr	Val	Asp	Pro	Leu	Thr	Lys	Leu	Val															
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Leu	Val	Asn	Ala	Ile	Tyr	Phe	Lys	Gly	Lys	Trp	Asn	Glu	Gln	Phe	Asp															
				165					170					175																
Arg	Lys	Tyr	Thr	Arg	Gly	Met	Leu	Phe	Lys	Thr	Asn	Glu	Glu	Lys	Lys															
			180					185					190																	
Thr	Val	Gln	Met	Met	Phe	Lys	Glu	Ala	Lys	Phe	Lys	Met	Gly	Tyr	Ala															
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Asp	Glu	Val	His	Thr	Gln	Val	Leu	Glu	Leu	Pro	Tyr	Val	Glu	Glu	Glu															
	210					215				220																				
Leu	Ser	Met	Val	Ile	Leu	Leu	Pro	Asp	Asp	Asn	Thr	Asp	Leu	Ala	Val															
225					230					235				240																
Val	Glu	Lys	Ala	Leu	Thr	Tyr	Glu	Lys	Phe	Lys	Ala	Trp	Thr	Asn	Ser															
				245					250					255																
Glu	Lys	Leu	Thr	Lys	Ser	Lys	Val	Gln	Val	Phe	Leu	Pro	Arg	Leu	Lys															
			260					265					270																	
Leu	Glu	Glu	Ser	Tyr	Asp	Leu	Glu	Pro	Phe	Leu	Arg	Arg	Leu	Gly	Met															
	275					280						285																		
Ile	Asp	Ala	Phe	Asp	Glu	Ala	Lys	Ala	Asp	Phe	Ser	Gly	Met	Ser	Thr															
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Glu	Lys	Asn	Val	Pro	Leu	Ser	Lys	Val	Ala	His	Lys	Cys	Phe	Val	Glu															
305					310				315					320																
Val	Asn	Glu	Glu	Gly	Thr	Glu	Ala	Ala	Ala	Ala	Thr	Ala	Val	Val	Arg															
				325				330					335																	
Asn	Ser	Arg	Cys	Ser	Arg	Met	Glu	Pro	Arg	Phe	Cys	Ala	Asp	His	Pro															
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Phe	Leu	Phe	Phe	Ile	Arg	Arg	His	Lys	Thr	Asn	Cys	Ile	Leu	Phe	Cys															
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Gly	Arg	Phe	Ser	Ser	Pro																									
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<210> 9  
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Met	Glu	Thr	Leu	Ser	Asn	Ala	Ser	Gly	Thr	Phe	Ala	Ile	Arg	Leu	Leu
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Val	Ser	Ile	Ser	Ser	Ala	Leu	Ala	Met	Val	Leu	Leu	Gly	Ala	Lys	Gly
		35					40					45			
Asn	Thr	Ala	Thr	Gln	Met	Ala	Gln	Ala	Leu	Ser	Leu	Asn	Thr	Glu	Glu
	50					55					60				
Asp	Ile	His	Arg	Ala	Phe	Gln	Ser	Leu	Leu	Thr	Glu	Val	Asn	Lys	Ala
65					70					75					80
Gly	Thr	Gln	Tyr	Leu	Leu	Arg	Thr	Ala	Asn	Arg	Leu	Phe	Gly	Glu	Lys
				85					90					95	
Thr	Cys	Gln	Phe	Leu	Ser	Thr	Phe	Lys	Glu	Ser	Cys	Leu	Gln	Phe	Tyr
			100					105					110		
His	Ala	Glu	Leu	Lys	Glu	Leu	Ser	Phe	Ile	Arg	Ala	Ala	Glu	Glu	Ser
	115						120				125				
Arg	Lys	His	Ile	Asn	Thr	Trp	Val	Ser	Lys	Lys	Thr	Glu	Gly	Lys	Ile
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Glu	Glu	Leu	Leu	Pro	Gly	Ser	Ser	Ile	Asp	Ala	Glu	Thr	Arg	Leu	Val
145					150					155					160
Leu	Val	Asn	Ala	Ile	Tyr	Phe	Lys	Gly	Lys	Trp	Asn	Glu	Pro	Phe	Asp
			165						170					175	
Glu	Thr	Tyr	Thr	Arg	Glu	Met	Pro	Phe	Lys	Ile	Asn	Gln	Glu	Glu	Gln
			180					185					190		
Arg	Pro	Val	Gln	Met	Met	Tyr	Gln	Glu	Ala	Thr	Phe	Lys	Leu	Ala	His
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Val	Gly	Glu	Val	Arg	Ala	Gln	Leu	Leu	Glu	Leu	Pro	Tyr	Ala	Arg	Lys
	210					215					220				
Glu	Leu	Ser	Leu	Leu	Val	Leu	Leu	Pro	Asp	Asp	Gly	Val	Glu	Leu	Ser
225					230					235					240
Thr	Val	Glu	Lys	Ser	Leu	Thr	Phe	Glu	Lys	Leu	Thr	Ala	Trp	Thr	Lys
				245					250					255	
Pro	Asp	Cys	Met	Lys	Ser	Thr	Glu	Val	Glu	Val	Leu	Leu	Pro	Lys	Phe
			260					265					270		

Lys Leu Gln Glu Asp Tyr Asp Met Glu Ser Val Leu Arg His Leu Gly  
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 Ile Val Asp Ala Phe Gln Gln Gly Lys Ala Asp Leu Ser Ala Met Ser  
           290                                  295                                  300  
 Ala Glu Arg Asp Leu Cys Leu Ser Lys Phe Val His Lys Ser Phe Val  
 305                                  310                                  315                                  320  
 Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Ser Ser Cys Phe  
                                   325                                  330                                  335  
 Val Val Ala Glu Cys Cys Met Glu Ser Gly Pro Arg Phe Cys Ala Asp  
                                   340                                  345                                  350  
 His Pro Phe Leu Phe Phe Ile Arg His Asn Arg Ala Asn Ser Ile Leu  
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